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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/726,461 | 12/03/2003 | Paul G. Wilson | 24170759.2 | 5873 |

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EXAMINER

BOYD, JENNIFER A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1771

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

12

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|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/726,461 | Applicant(s) WILSON ET AL. | |
| | Examiner Jennifer A Boyd | Art Unit 1771 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 26-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>11/15/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The Applicant's Amendments and Accompanying Remarks, filed November 1, 2004, have been entered and have been carefully considered. Claims 1, 12 – 14, 19 and 22 – 23 are amended and claims 1 – 25 are pending. In view of Applicant's amendment to claim 19, the Examiner withdraws the claim objection as discussed in the previous Office Action dated June 23, 2004. In view of Applicant's amendments to claims 12 – 13 and 22 – 23, the Examiner withdraws the 35 USC 112, 2nd paragraph rejection as discussed in the previous Office Action dated June 23, 2004. In view of Applicant's amendments to the independent claims requiring that both the first and second layers are nonwoven, the Examiner withdraws all previously set forth rejections as detailed in the previous Office Action dated June 23, 2004. However, after an updated search, additional prior art has been found which renders the invention as currently claimed unpatentable for reasons herein below.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 1 – 4, 7, 14 – 15 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Woiceshyn (US 5,439,726).

Woiceshyn is directed to a bituminous roofing membrane (Title).

As to claim 1, Woiceshyn teaches that the membrane includes a first, second and third

Art Unit: 1771

layer and a bituminous material (Abstract and see Figure 7). Woiceshyn teaches that the first layer 1 is a nonwoven fabric comprising yarns in the cross-machine direction held between pairs of yarns in the machine direction (column 2, lines 58 – 65 and Abstract). Woiceshyn teaches that the third layer comprises a porous fiberglass mat 12 (column 3, lines 40 – 60 and Abstract). The Examiner equates the first layer to Applicant's "first layer of directionally aligned nonwoven fibers" and the third layer to Applicant's "second layer of randomly dispersed nonwoven fibers". It should be noted that the random mat 12 is over the first layer 1 as required by the Applicant.

As to claims 2 – 3, Woiceshyn teaches that the first layer comprises a set of yarns in the cross-machine direction and a set of yarns in the machine direction (Abstract). As shown in Figures 1 – 2, the sets are crossed creating Applicant's plurality of "crossing linear formations".

As to claim 4, Woiceshyn teaches that the first layer 1 comprises polyester fibers (column 2, lines 10 – 25) and the third layer or random mat comprises glass fibers (Abstract).

As to claim 7, Woiceshyn teaches that the first layer or nonwoven fabric 1 is held together with an adhesive (column 3, lines 1 – 5) and the third layer or entangled mat may be also held together by an adhesive (column 3, lines 40 – 50). The adhesive is equated to Applicant's "binder".

As to claim 14, Woiceshyn teaches that the membrane includes a first, second and third layer and a bituminous material (Abstract and see Figure 7). Woiceshyn teaches that the first layer 1 is a nonwoven fabric comprising yarns in the cross-machine direction held between pairs of yarns in the machine direction (column 2, lines 58 – 65 and Abstract). It should be noted that the fabric comprises two sets of fibers dispersed in two different directions. Woiceshyn teaches that the third layer comprises a porous fiberglass mat 12 (column 3, lines 40 – 60 and

Art Unit: 1771

Abstract). The Examiner equates the first layer to Applicant's "first layer of directionally aligned nonwoven fibers" and the third layer to Applicant's "second layer of randomly dispersed nonwoven fibers". It should be noted that the random mat 12 is over the first layer 1 as required by the Applicant. Woiceshyn teaches that the first layer or nonwoven fabric 1 is held together with an adhesive (column 3, lines 1 – 5) and the third layer or entangled mat may be also held together by an adhesive (column 3, lines 40 – 50). The adhesive is equated to Applicant's "binder".

As to claim 15, Woiceshyn teaches that the first layer 1 comprises polyester fibers (column 2, lines 10 – 25) and the third layer or random mat comprises glass fibers (Abstract).

As to claim 20, Woiceshyn teaches that the first layer comprises a set of yarns in the cross-machine direction and a set of yarns in the machine direction (Abstract). As shown in Figures 1 – 2, the sets are crossed creating Applicant's plurality of "linear formations extending in one or more predetermined directions".

4. Claims 1, 7, 9 – 10, 14 and 18 – 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Green (US 5,151,146).

Green is directed to a method of making a roofing laminate (Title).

As to claims 1, 7 and 14, Green teaches the mating of at least two plies of fiberglass scrim fabric to form a roofing membrane (Abstract). At least one of the plies is a triaxially wound scrim fabric to provide additional strength to a standard open mesh rectangular formed scrim fabric (Abstract). Green teaches that the first ply 14 consists of a 1000 denier continuous filament selvage yarn around which the fiberglass yarn is triaxially wound producing a

Art Unit: 1771

nonwoven scrim (column 2, lines 1 – 8). The triaxially wound fiberglass, equated to Applicant's "first layer", is delivered between fiberglass warp yarns 22 and 24 to form a yarn sheet 23 and then passed through the adhesive bath 26. After the yarn sheet 23 passes through the adhesive bath 26, it is mated with a web of nonwoven fiberglass 28. It should be noted that the web of nonwoven fiberglass 28 is equated to Applicant's "second layer". The web of nonwoven fiberglass 28 picks up adhesive 36 from the bath 36 in the roll as it mates with the yarn sheet 23 (column 2, lines 8 – 22). As shown in Figures 3 and 4, the fibers of the triaxially wound material are shown to extend in multiple linear formations or are directionally aligned as required by the Applicant. As discussed, the adhesive is distributed among both all of the layers as required by the Applicant.

As to claims 9 – 10 and 18 – 19, Green teaches that the adhesive, or Applicant's "binder material", comprises cross-linked acrylic latex (column 2, lines 15 – 22).

Claim Rejections - 35 USC § 103

5. Claims 5 – 6, 8, 11 – 13, 16 – 17 and 21 – 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woiceshyn (US 5,439,726).

Woiceshyn discloses the claimed invention except for the fibers have a diameter from about 0.00001 inches to 0.0300 inches as required by claims 5 and 16, the fibers have a length of about 0.10 inches to about 1.5 inches as required by claims 6 and 17, the fiber material comprises 5 – 30% binder by weight as required by claims 8 and 25, the first layer comprises a thickness of about 50% of the total thickness of the fiber material as required by claims 11 and 21, the fiber material has a weight of 1.6 lbs/sq and 15% of the weight of the fiber material is binder material

Art Unit: 1771

as required by claims 12 and 22, the overall thickness of the fiber material is about 0.035 inches and the thickness of the first nonwoven layer is about 0.002 to 0.010 inches as required by claims 13 and 23, and the first and second pluralities of fibers are both horizontally dispersed to a substantially uniform thickness as required by claim 24. It should be noted that fiber diameter, fiber length, layer thickness, layer weight, amount of binder and uniform thickness are result effective variables. For example, as the fiber diameter and length increases, the material becomes stronger and less flexible. As the thickness of the first layer increases, the material becomes stiffer. As the thickness becomes more uniform, the material has superior mechanical properties. As the amount of binder increases, the fabric becomes more integrated and stiffer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to create a layer having fibers have a diameter from about 0.00001 inches to 0.0300 inches as required by claims 5 and 16, the fibers have a length of about 0.10 inches to about 1.5 inches as required by claims 6 and 17, the fiber material comprises 5 – 30% binder by weight as required by claims 8 and 25, the first layer comprises a thickness of about 50% of the total thickness of the fiber material as required by claims 11 and 21, the fiber material has a weight of 1.6 lbs/sq and 15% of the weight of the fiber material is binder material as required by claims 12 and 22, the overall thickness of the fiber material is about 0.035 inches and the thickness of the first nonwoven layer is about 0.002 to 0.010 inches as required by claims 13 and 23, and the first and second pluralities of fibers are both horizontally dispersed to a substantially uniform thickness as required by claim 24 since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have been motivated to optimize the fiber

Art Unit: 1771

diameter and length, the layer thickness and uniformity, the layer weight and amount of binder in order to create a strong, thin and flexible composite suitable for roofing applications.

Response to Arguments

6. Applicant's arguments with respect to claims 1- 25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A Boyd whose telephone number is 571-272-1473. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

Art Unit: 1771

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jennifer Boyd
January 6, 2005


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SUPERVISORY PATENT EXAMINER
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